Chapter IV: Environmental Consequences

Introduction

The National Environmental Policy Act requires that environmental documents disclose the environmental impacts of a proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. This chapter of *The Marine Mammal Center Site and Facilities Improvements Project Environmental Assessment* analyzes the environmental impacts of the four project alternatives. This analysis provides the basis for comparing the beneficial and adverse effects of the alternatives.

Following this introduction, the chapter presents the methodologies used in the environmental impact analysis. The impact analyses sections are organized by resource topic. Each resource topic section analyzes Alternative 1 (the No Action Alternative) compared to existing conditions, including impacts on natural resources, cultural resources, and social resources, and presents impact conclusions. The subsequent sections within each resource topic analyze the action alternatives (i.e., Alternative 2, Alternative 3, and Alternative 4) compared to Alternative 1. Environmental impacts are summarized in table II-2: Summary of Environmental Consequences, located at the end of Chapter II, Alternatives.

Methodology

Context, Duration, Intensity, and Type of Impact

The analysis of environmental impacts considers the context, duration, intensity, and type of impact, as defined below.

Context

The context of the impact considers whether the impact would be local or regional. For the purposes of this analysis, local impacts would generally be those that occur within the immediate vicinity of The Marine Mammal Center and the Marin Headlands. Regional impacts would be those that occur in the surrounding park and community.

Duration

The duration of the impact considers whether the impact would occur in the short term or the long term. Short-term impacts are temporary, transitional, or construction-related impacts associated with project activities. Long-term impacts are typically those effects that would last several years or more or would be permanent.

Intensity

The intensity of the impact considers whether the effect would be negligible, minor, moderate, or major. Negligible impacts would not be detectable and would have no discernible effect. Minor impacts would be slightly detectable, but would not be expected to have an overall effect.

Moderate impacts would be clearly detectable and could have an appreciable effect. Major impacts would have a substantial, highly noticeable effect.

Type of Impact

Impacts were evaluated in terms of whether they would be beneficial or adverse. Beneficial impacts would improve resource conditions. Adverse impacts would deplete or negatively alter resources.

Cumulative Impacts

A cumulative impact is described in regulations developed by the Council on Environmental Quality, Regulation 1508.7, as follows:

> A "cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The cumulative projects addressed in this analysis include past and present actions as well as any planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future. Cumulative actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. Because most of the cumulative projects are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the projects. Projects identified by the National Park Service (NPS) that would cumulatively contribute to the environmental impacts of The Marine Mammal Center Project are identified at the end of this chapter.

Impairment

Pursuant to the 1916 Organic Act, the National Park Service has a management responsibility "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." As a result, the National Park Service cannot take an action that would "impair" the resources of the Golden Gate National Recreation Area (GGNRA). National Park Service *Management Policies 2001* provide guidance on addressing impairment.

Impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Impairment of park resources and values was evaluated on the basis of duration and intensity of impacts.

Director's Order #12 requires that impairment be addressed in all environmental assessments and draft and final environmental impact statements, as well as in the decision documents (Finding of No Significant Impact, Record of Decision). In this environmental assessment, impairment is addressed in the conclusion section of each impact topic under each alternative.

Analysis of Environmental Consequences

Water Resources

Alternative 1

Analysis

Operation-related Effects on Water Resources. Under Alternative 1, The Marine Mammal Center would continue to operate with an out-dated and inefficient water treatment and delivery system. The LSS systems filters, basins, piping etc. at The Center would continue to operate above-grade, exposed to sunlight resulting in UV degradation of equipment (a-long-term maintenance issue) and, more importantly, heat-gain would continue to be introduced into the water circulating through the systems. Bacteria would continue to flourish in warmer water resulting in the out-dated LSS systems under-performing and delivering the poorest water quality just when the systems and staff are the most stressed. The poorer water quality during this time would continue to act as an added health risk to the animals and result in conditions that are not safe for the staff working with the animals in the pools.

The total volume of water that could be contained in the existing pools would continue to total about 47,000 gallons assuming all pools are filled. Water would continue to be lost to leakage and evaporation. Average annual water would continue to be used at the following rates:

Typical Condition: 4,520,000 gallons per year

El Nino Condition: 5,950,000 gallons per year

An NPS report produced in 2000 found that two to four times a year during extreme storm conditions the sanitary sewer lift-stations overflows and the overflow can discharge into Rodeo Lagoon. The rainfall from the Center's pen enclosures appears to be a contributing factor to the lift-station overflow. Under Alternative 1 this condition would continue until addressed in a separate utility upgrade project.

Impact Significance. Local, Long-term, Moderate, Adverse Impact.

Summary of Alternative 1 Impacts. Alternative 1 would have a local, long-term, moderate, adverse effect on water resources associated with The Center's out-dated and inefficient system resulting in a moderately high water demand and continued periodic high discharge of stormwater into the sanitary sewer system, causing lift station failure.

Impairment

Alternative 1 would result in a local, long-term, moderate, adverse impact to water resources in the project area. The adverse effect of this alternative on water resources would be localized to the project area and would not be expected to have an overall effect on the water resources of the area. The local adverse impacts to water resources would not be of sufficient magnitude or nature to impair water supply or quality elsewhere in GGNRA or affect the integrity of resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Operation-related Effects on Water Resources. Implementation of Alternative 2 would have a long-term, moderate beneficial impact on water resources in the project area. Installing new water treatment systems would allow for the larger pools envisioned under this alternative to be filled to capacity using less water on an annual basis than currently used. This results in a capacity of 207,000 gallons assuming all pools are concurrently filled. This represents an increase of 160,000 gallons over the 47,000 gallons current capacity which correlates to improved treatment for animals and safety for staff and volunteers. As discussed in Chapter III, the total volume capacity of the pools is not in itself the basis of annual water use. Under this alternative annual water use would actually decrease because of designed efficiencies of the new system. The redesigned system would loose considerably less water through leakage and evaporation. In addition pens and pools currently must be emptied and refilled once a week to maintain water quality, however the new filtration system would allow for pens and pools to be emptied and refilled every two and a half weeks resulting in substantial water savings. This resulting decrease in annual water use also includes the proportionally small increase in domestic water use due to facilities included in the new buildings under this alternative.

It is assumed that this new dump and fill rate would be used for all new animal holding pools, with the exception of the cetacean pools. Because the animal loads in the cetacean pools are expected to be very low compared to the animal loads in other pools, the design assumes that the new cetacean pools would be flushed at a rate of approximately ten percent per month over the course of the year.

As described in further detail in Appendix E, total water use is expected to range from 29 to 55 percent of the total existing water use during typical conditions and from 41 and 76 percent of the total existing water use during El Nino conditions. This wide range is based on a range of operational assumptions and can vary depending on how long each pen is backwashed and how efficiently filters are operating. The differences between typical and El Nino conditions are primarily due to the number of animals seen in these types of years.

Typical Condition: 2,544,800 – 3,702,000 gallons per year

El Nino Condition: 3,664,500 – 5,747,000 gallons per year

The system's ability to accommodate peak water demands and peak treatment demands are increased under this alternative. Water storage and metering basins designed into the LSS systems allow water to be filled or dumped to the source system at any time of the day or night. Because peak demand for the LSS systems would be more controllable with the modernized design, peak demand should not be an unfavorable factor for the LSS systems. Mitigation Measures included in Appendix A describe coordination with Marin Municipal Water District regarding initial fill and peak demand periods.

Alternative 2 adds 29,000 square feet of additional impermeable surfaces to the project area primarily from the increased parking capacity. This increase in impervious area could result in a moderate adverse impact to water quality from increased contaminants that are carried over paved areas into Rodeo Lagoon. Mitigation Measures included in Appendix A would control and treat these contaminants and reduce this impact to minor, adverse. Mitigation measures would

also seek to remove existing hardened surface elsewhere within the Park equal to or greater than the amount of impermeable surfaces added as part of this project.

Alternative 2 would include the operational capability to interrupt rainfall flowing to the pen enclosure area drains either by using the 40,000 gallon cetacean pool as an equalization basin or another comparably-sized basin to regulate flow of rainfall under extreme conditions. This additional capacity would eliminate contributions to the sanitary system coming from the Center under those conditions found two to four times a year during extreme storm conditions when the sanitary sewer lift-stations overflows. Mitigation Measures are included in Appendix A to direct parking lot drainage away from the sewer system and to ensure coordination and monitoring of these new facilities during storm events.

Impact Significance. Local, Long-term, Minor, Adverse Impact.

Construction-related Effects on Water Resources Overall, construction activities could cause erosion of exposed soil and subsequent sedimentation of surface water flows are controlled by mitigation measures that would be required prior to and during construction. These measures would reduce temporary construction-related erosion during periods of rain, while soil would be exposed, and prior to the site restoration and cleanup phase of the project. Mitigation Measures included in Appendix A to reduce erosion include limiting exposed import stockpiles during construction, implementing erosion control measures and implementation of a Stormwater Pollution Prevention Plan. Soil degradation would be minimal due to Stormwater Pollution Prevention Plan requirements and the short-term nature of the construction activities.

Impact Significance After Mitigation Included in the Project. Local, Short-term, Negligible to Minor, Adverse Impact.

Impairment

Alternative 2 would result in a local, short and long-term, minor, adverse impact to water resources at The Marine Mammal Center project area. The Marine Mammal Center Project would not be expected to have an overall effect on the water resources of the area, due to the overall reduction in water use and control of storm water discharge at the site. These local impacts to water resources would not be of sufficient magnitude or nature to impair the integrity or availability of water resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 2 would not impair resources or park values for future generations.

Alternative 3

Analysis

Operation– and Construction- related Effects on Water Resources. Similar to Alternative 2, Alternative 3 would have a long-term, moderate beneficial impact on water resources in the project area. Installing new water treatment systems would allow for the larger pools envisioned under this alternative to be filled to capacity using less water on an annual basis. In addition, peak demand should not be an unfavorable factor for the LSS systems. Mitigation Measures included in Appendix A would reduce impacts relating to peak use and increased storm water.

Alternative 3 adds 46,200 square feet of additional impermeable surfaces to the project area primarily from the increased parking capacity. This increase in impervious area could result in a moderate adverse impact to water quality from increased contaminants that are carried over paved areas into Rodeo Lagoon. Mitigation Measures included in Appendix A would control and treat these contaminants and reduce this impact to minor, adverse. Measures would also seek to remove existing hardened surface elsewhere within the Park equal to or greater than the amount of impermeable surfaces added as part of this project.

Impact Significance after Mitigation Included in the Project. Local, Long-term, Minor, Adverse Impact.

Impairment

Similar to Alternative 2, Alternative 3 would result in a local, long-term, minor, adverse impact to water resources at The Marine Mammal Center project area. Alternative 3 would not be expected to have an overall effect on the water resources of the area or to impair the availability or quality of water resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 3 would not impair resources or park values for future generations.

Alternative 4

Analysis

Operation and Construction-related Effects on Water Resources. Similar to Alternative 2, Alternative 4 would have a long-term, moderate beneficial impact on water resources in the project area. Installing new water treatment systems would allow for the larger pools envisioned under this alternative to be filled to capacity using less water on an annual basis. In addition, peak demand should not be an unfavorable factor for the LSS systems. Mitigation Measures included in Appendix A would reduce impacts relating to peak use and increased storm water.

Alternative 4 adds 13,470 square feet of additional impermeable surfaces to the project area primarily from the increased parking capacity. This increase in impervious area could result in a moderate adverse impact to water quality from increased contaminants that are carried over paved areas into Rodeo Lagoon. Mitigation Measures included in Appendix A would control and treat these contaminants and reduce this impact to minor, adverse. Measures would also seek to remove existing hardened surface elsewhere within the Park equal to or greater than the amount of impermeable surfaces added as part of this project.

Like Alternative 2, this Alternative would include the operational capability to interrupt rainfall flowing to the pen enclosure area drains either by using the 40,000 gallon cetacean pool as an equalization basin or some comparable basin to regulate flow of rainfall under extreme conditions and prevent lift-station failure. Mitigation Measures are included in Appendix A to ensure coordination and monitoring of these new facilities during storm events.

Impact Significance after Mitigation Included in the Project. Local, Long-term, Minor, Adverse Impact.

Impairment

Similar to Alternative 2, Alternative 4 would result in a local, long-term, minor, adverse impact to water resources at The Marine Mammal Center project area. Alternative 4 would not be expected to have an overall effect on the water resources of the area or to impair the availability or quality of water resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 3 would not impair resources or park values for future generations.

Biological Resources

Alternative 1

Analysis

Operation-related Effects on Biological Resources. Under Alternative 1, none of the facilities of the proposed project would be implemented. The Center would continue to function under its current intensity. No effects to surrounding vegetation, wildlife, or wetlands would occur.

Impact Significance. No Impact.

Summary of Alternative 1 Impacts. Alternative 1 would have no impact on biological resources.

Impairment

Alternative 1 would result in no impact to biological resources in the project area. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Construction-related Effects on Biological Resources. Construction of the proposed facilities would temporarily disturb vegetation in the project area. The past land use practices of the project area, including military operations, have substantially altered the native vegetation and it is likely that no special-status species exist. None of the locally or regionally occurring special-status plants would be directly or indirectly affected under proposed Alternative 2. The re-configured parking area on the west side of the site would require the removal of approximately 15 Monterey pine and cypress trees. In addition, approximately 17,000 square feet (or .40 acres) of non-native annual grassland would be removed for the construction of the ring road parking lot. These effects would be mitigated by invasive plant removal and/or restoration. Approximately 8,200 square feet of native plants would be restored on the southeast edge of the site where the water filtration system is currently located. This restoration would be propagated at the NPS nursery in accordance with NPS Guidelines and the compatibility guidance developed for this project.

None of the locally or regionally-occurring special status wildlife species would be directly impacted by the proposed Alternative 2. Indirect impacts to special-status and common wildlife species may occur during construction. Indirect impacts include disturbance and harassment from construction activities and general increased human presence. The ring road would be constructed in a grassland area that currently provides a corridor for wildlife species and construction activities may prevent wildlife from using this corridor during the construction

period. Installation of the ring road does not constitute a permanent barrier for wildlife. These impacts are considered minor and no mitigation would be required.

Construction activities have the potential to directly and indirectly affect nesting and breeding birds and raptors protected under the Migratory Bird Treaty Act. Nesting habitat for several non-listed bird species occurs within the project area, including the Monterey pine and cypress trees. Removal of these trees for placement of the ring road has the potential to impact breeding and nesting birds. Contaminated run-off into Rodeo Lagoon and Lake could impact water quality and thus animals living in these water bodies. Appendix A, Mitigation Measures, identifies biological resources protection measures such as pre-construction surveys, establishing buffers around trees with active nests and timing of removals. Other mitigation included in other parts of this EA (particularly under water resources) would also protect these species.

Although these mitigation measures would reduce the adverse biological effect of construction activity, it would not reduce the intensity of the adverse impact.

Placement of the ring road would result in the permanent fill of .08 acres/square feet of waters of the U.S. including wetlands. The small natural and constructed drainages would be filled as well as the larger swale drainage along the northern side of the property. Section 404 of the Clean Water Act requires obtaining a permit prior to placing fill into a water of the U.S. Appendix A, Mitigation Measures, identifies biological resources protection measures such as obtaining an Section 404 permit from the U.S. Army Corps of Engineers. NPS and the Corps would require mitigation to replace the functions and values lost from the permanent fill of jurisdictional areas. Although this mitigation measure and the requirements that would come with such a permit would reduce the adverse biological effect of construction activity, it would not reduce the intensity of the adverse impact.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Moderate, Adverse Impact.

Summary of Alternative 2 Impacts. Alternative 2 would have local, short-term, moderate, adverse effect on biological resources due to impacts associated with construction activity, such as construction equipment and ground disturbance. The adverse biological resource impacts would be somewhat offset by planned restoration and the mitigation included in this analysis.

Impairment

Alternative 2 would result in local, short-term, moderate, adverse impacts to biological resources at The Marine Mammal Center project area. The adverse effect of this alternative on biological resources would be localized but clearly detectable. The Marine Mammal Center Project would not be expected to have an overall effect on the biological resources of the area, due to the temporary duration of construction activity and the existing developed features in the area (i.e., The Marine Mammal Center, corporation yard, Fort Cronkhite, and the Marin Headlands Visitor Center). The local adverse impacts to biological resources would not be of sufficient magnitude or nature to impair the integrity of biological resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 2 would not impair resources or park values for future generations.

Alternative 3

Analysis

Operation-related Effects on Biological Resources. Alternative 3 could have a local, long-term, adverse impact on the wetland area that is located to the east of the former kennel site where the remote parking would be located. Sediment and other run-off from the new remote lot could impair this resource. Implementation of mitigation measures identified in Appendix A, Mitigation Measures, such as designing this lot to slope away from the wetland areas and installing easily cleanable catch-basins, debris screens, and grease separators or similar water quality protection devices would reduce these impacts.

Impact Significance. Local. Long-term, Minor, Adverse Impact.

Construction-related Effects on Biological Resources. Similar to Alternative 2, Alternative 3 would have a local, short-term, adverse impact on biological resources in the project area during the construction period. As with Alternative 2, the construction of the ring road and access to the remote parking would require some tree removal. Under Alternative 3, removal would include approximately 5 Monterey pine and cypress trees on the western edge of the site and approximately 23,000 square feet (or .52 acres) of annual grassland on the western edge of the site and at the old kennel site where a paved parking lot would be planned (see below). Approximately 8,200 square feet of native plants would be restored on the southeast edge of the site where the water filtration system is currently. This restoration would be propagated at the NPS nursery in accordance with NPS Guidelines and the compatibility guidance developed for this project.

None of the locally or regionally-occurring special status wildlife species would be directly impacted by the proposed Alternative 3. As with Alternative 2, indirect impacts to special-status and common wildlife species may occur during construction. These impacts are considered minor and no mitigation would be required to address them. Direct and indirect effects to nesting and breeding birds would be considered moderate with the implementation of Mitigation Measures described above.

As under Alternative 2, construction of the ring road around the perimeter of the Center would result in the permanent fill of .08 potentially jurisdictional features. As with Alternative 2, impacts to wetlands would be considered minor with the implementation of Mitigation Measures discussed above.

The remote parking area as proposed under Alternative 3 would provide a remote parking facility at the southern end of the project site (kennel site). Construction in this area has the potential to indirectly affect nesting and breeding birds as discussed above in the dense scrub vegetation located in this area. Impacts to birds and raptors resulting from the construction of the remote parking area would be minor with the implementation of Mitigation Measures discussed above.

The construction of the remote parking area and access drive may require the removal of scrub vegetation including coyote brush, coffeeberry and annual grassland species. The existing vegetation within the proposed parking area is dense and is part of a larger corridor of coastal scrub vegetation outside the project area. No rare plant surveys have been conducted in the project area and therefore the presence or absence of special-status plants cannot be verified. Construction of the remote parking has the potential to effect special status plants if they exist

within the project boundary. Contaminated run-off into Rodeo Lagoon and Lake could impact water quality and thus animals living in this water bodies. Appendix A, Mitigation Measures, identifies biological resources protection measures such as conducting appropriately-timed rare plant surveys prior to construction and if rare plants are found, applying appropriate avoidance measures. Other mitigation included in other parts of this EA (particularly under water resources) would also protect these species. Although these mitigation measures would reduce the adverse biological effect of construction activity, it would not reduce the intensity of the adverse impact.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Moderate, Adverse Impact.

Summary of Alternative 3 Impacts. Alternative 3 would have local, short-term, moderate, adverse effect on biological resources due to biological impacts associated with construction activity, such as construction equipment and ground disturbance including development of a new paved area for the remote parking lot. The adverse biological resource impacts have been somewhat offset by planned restoration and the mitigation included in this analysis.

Impairment

Similar to Alternative 2, Alternative 3 would result in a local, short-term, moderate, adverse impact to biological resources at The Marine Mammal Center project area. The adverse effect of this alternative on biological resources would be localized but clearly detectable. Alternative 3 would not be expected to have an overall effect on the biological resources of the area, due to the temporary duration of construction activity and the existing developed features in the area. The local adverse impacts to biological resources would not be of sufficient magnitude or nature to impair the integrity of biological resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 3 would not impair resources or park values for future generations.

Alternative 4

Analysis

Operation-related Effects on Biological Resources. Similar to Alternative 3, this Alternative could have a local, long-term, adverse impact on the wetland area that is located to the east of the former kennel site where the remote parking would be located. Sediment and other run-off from the new remote lot could impair this resource. Implementation of mitigation measures identified in Appendix A, Mitigation Measures, such as designing this lot to slope away from the wetland areas and installing easily cleanable catch-basins, debris screens, and grease separators or similar water quality protection devices would reduce these impacts.

Impact Significance. Local. Long-term, Minor, Adverse Impact.

Construction-related Effects on Biological Resources. Similar to Alternative 2, Alternative 4 would have a short-term, adverse impact on biological resources in the project area during the construction period. Alternative 4, however, would have considerably less construction activity because administration and educational uses would be retained at Fort Cronkhite.

Under this Alternative, the construction of the ring road would require the removal of approximately 8 Monterey pine and cypress trees on the western edge of the property and

13,000 square feet (or .3 acres) of annual grassland at the old kennel site where a paved parking lot would be planned. The remote parking area as proposed under Alternative 4 includes fewer parking spaces than Alternative 3 and effects on vegetation would be slightly less as a result. However, construction of the smaller remote parking still has the potential to effect special status plants if they exist within the project boundary. These effects can be reduced to moderate levels with the implementation of Mitigation Measures discussed above. Approximately 8,200 square feet of native plants would be restored on the southeast edge of the site where the water filtration system is currently. This restoration would be propagated at the NPS nursery in accordance with NPS Guidelines and the compatibility guidance developed for this project.

Under Alternative 4, project effects to common wildlife, nesting raptors and special-status bird species would be the same as in Alternatives 2 and 3. The smaller construction footprint for the remote parking area as proposed under Alternative 4 would require removal of less scrub vegetation and therefore effects on nesting raptors and special-status birds would be less than with Alternative 3. Direct and indirect effects on nesting birds and raptors would be considered moderate with the implementation of Mitigation Measures discussed above.

As with Alternatives 2 and 3, the construction of the ring road would result in the permanent fill of .08 acres of potentially jurisdictional features. Effects of the construction of the ring road would be considered moderate with the implementation of Mitigation Measures discussed above.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Moderate, Adverse Impact.

Summary of Alternative 4 Impacts. Alternative 4 would have local, short-term, moderate, adverse effect on biological resources due to biological impacts associated with construction activity, such as construction equipment and ground disturbance. The adverse biological resource impacts have been somewhat offset by planned restoration and the mitigation included in this analysis.

Impairment

Similar to Alternative 2, Alternative 4 would result in a local, short-term, moderate, adverse impact to biological resources at The Marine Mammal Center project area. The adverse effect of this alternative on biological resources would be localized but clearly detectable. Alternative 4 would not be expected to have an overall effect on the biological resources of the area, due to the temporary duration of construction activity and the existing developed features in the area. The local adverse impacts to biological resources would not be of sufficient magnitude or nature to impair the integrity of biological resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 4 would not impair resources or park values for future generations.

Geology, Soils and Seismicity

Alternative 1

Analysis

Alternative 1, none of the facilities of the proposed project would be implemented. The Center would continue to function under its current intensity and no new facilities or roadways would be

constructed. Therefore, no geologic, soil, or seismic safety impacts associated with project implementation would result.

Impact Significance. No Impact.

Impairment

Alternative 1 would result in no impact to geology, soils, and seismicity resources in the project area. Thus the Alternative would not affect the geologic elements that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Construction-related Effects on Geology, Soils and Seismicity. Construction of the proposed facilities for this alternative would involve excavation of approximately 4,800 cubic yards of material and the placement of approximately 2,400 cubic yards of fill in the area of the proposed ring road and western edge additional parking. Use of inappropriate fill material, such as a soil that does not have adequate bearing strength, or fill that is improperly engineered and compacted could be subject to settlement. Settlement in turn could damage roadways, underground utilities, or site structures. In addition, fill materials placed at the site in the past may not have been engineered during placement and could be subject to settlement or have inadequate strength to support the proposed structures, including new tanks, buildings and the roadways. Similarly, underlying native materials may not have adequate strength to support the proposed structures. Differential settlement could occur in areas that are underlain by different soil and rock types or a combination of native materials and artificial fill. A site-specific geotechnical investigation conducted in February 2003 identified feasible engineering methods to reduce the potential for damage due to collapse or settlement of weak foundations soils or fill. These recommendations are included in Appendix A as Mitigation Measures. Although these mitigation measures would reduce the potential damage of proposed project changes, the impact would remain adverse.

Precipitation contacting unpaved areas can cause soil erosion. Rilling and gullying can remove portions of an engineered slope. Erosion during construction phases of the project, especially during trenching, stripping and recompaction of artificial fill, initial site grading, and prior to resurfacing, could undermine building and tank foundations or cause trenches to collapse. Long-term erosion hazards could result from poorly designed drainage facilities that allow the concentration of storm water flows in areas that are not designed or equipped to accommodate such flows. Erosion would be prevented during construction because the site would be winterized (i.e., prepared for winter storms) and standard construction practices to prevent erosion would be implemented. Long term erosion would be avoided because drainage facilities would be properly designed and engineered to accommodate projected flows, according to standard engineering practice. As these conditions are met by project design, no mitigation measures are necessary.

This alternative would involve the excavation of approximately 4,800 cubic yards of material, primarily to the west of the existing Center. Cutting for the perimeter roadway into the base of the

existing cut slope north of the site and into the slope west of the existing site could reduce slope stability to an unacceptable factor of safety. In addition, water collecting or infiltrating at the base of the existing slide near the northeastern corner of the site could contribute to the continued creep or minor movement of the slide. Slope failure or localized landslides resulting from destabilized slopes could result in injury to people and animals at the Center and damage to Center facilities. The report on the geotechnical investigation conducted at the site recommends against removing significant amounts of material at the base of this cut slope, as such removal could reduce the stability of the slopes. The geotechnical report also provides recommendations contingent upon the report authors' review of earthwork and foundation plans and their observations of the earthwork and foundation installation phases of construction. These recommendations are included in Appendix A as Mitigation Measures. Although these mitigation measures would reduce the potential damage of proposed project changes, the impact would remain adverse.

Earthquakes are an unavoidable geologic hazard at the Marin Headlands. The intensity of a seismic event would depend on the causative fault and the distance to the epicenter, the moment magnitude, and the duration of ground shaking. For instance, a large earthquake (magnitude 7 or greater) on the North Golden Gate segment of the San Andreas fault could generate higher-intensity ground shaking at the Center than would a similarly large earthquake on a more distant fault such as the Hayward fault or the Rodgers Creek fault. If new buildings and tanks were not designed and constructed in accordance with current standards of earthquake-resistant construction, ground shaking during an earthquake could cause substantial damage to these facilities. In addition, ground shaking could cause unattached objects within buildings to fall or undergo movement which could cause injury to people or damage to facilities or equipment. Recommendations from the Cleary report are included in Appendix A as Mitigation Measures. These mitigation measures would reduce the potential damage of proposed project changes to minor though the impact would remain adverse.

Impact Significance after Mitigation Included in the Project. Local, Short and long-term, Minor - Moderate, Adverse Impact.

Summary of Alternative 2 Impacts. Alternative 2 would have local, short and long-term, minor - moderate, adverse effect on geology, soils and seismicity due to impacts associated with construction activity and adequate design of facilities. The adverse impacts to geology, soils and seismicity have been somewhat offset by the mitigation included in this analysis.

Impairment

Alternative 2 would result in a local, short and long-term, minor - moderate, adverse impacts to geology, soils and seismicity in The Marine Mammal Center project area. The adverse effects of this alternative would be localized but clearly detectable. The Marine Mammal Center Project would not be expected to have an overall effect on geology, soils and seismicity in the area, due to the temporary duration of construction activity and the mitigation measures included in the project. These local adverse impacts would not be of sufficient magnitude or nature to impair the integrity of biological resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 2 would not impair resources or park values for future generations.

Alternative 3

Analysis

Construction-related Effects on Geology. Earthwork undertaken for this alternative would involve excavation of approximately 3,400 cubic yards of material, primarily in the area west of the existing Center and the remote parking area (kennel site), and the placement of approximately 2,200 cubic yards of fill in these areas and along the ring road. Impacts under Alternative 3 would be generally the same as described for Alternative 2. Both alternatives share similar potential impacts related to seismic ground shaking, settlement, and soil erosion at the main Center site. All mitigation measures identified for Alternative 2 would apply to the main site and perimeter roadway construction undertaken as part of this alternative. The notable difference between the two alternatives is the construction of a remote parking area south of the main site. The remote parking area would utilize portions of an existing roadway and graded area. Implementation of this alternative would involve additional grading and cut and fill activities along the proposed roadway and parking area.

The kennel area is underlain by geologic materials similar to those underlying the main site (i.e., Franciscan sandstone and shale). As with the main site, fill materials placed under the existing roadway and storage area may not have been engineered during placement. This area may thus be subject to settlement or have inadequate strength to support the proposed use. This area would also be subject to the same potential for soil erosion and to the effects of ground shaking discussed with respect to the main site facilities, above. Because the use of this area would be limited to a parking access road and parking, potential impacts to structures would be limited. As discussed under Alternative 2, construction-related erosion impacts would be avoided because the construction site would be winterized and standard construction practices to prevent erosion would be implemented. To prevent the occurrence of long-term erosion, drainage facilities would be designed and engineered to direct surface runoff to drainage structures capable of accommodating projected flows away from wetland areas east of the site (see Appendix E – Water Resources). These would be constructed according to standard engineering practice. Mitigation measures are included in Appendix A that require the authors of the geotechnical investigation report for the project (Cleary Consultants, Inc., 2003) be retained to review the final design plans for this alternative and to observe earthwork and foundation installation of all aspects of Alternative 3.

These mitigation measures would reduce the potential damage of proposed project changes under this Alternative to minor though the impact would remain adverse.

Impact Significance after Mitigation Included in the Project. Local, Short and long-term, Minor Adverse Impact.

Summary of Alternative 3 Impacts. Alternative 3 would have local, short and long-term, minor adverse effect on geology, soils and seismicity due to impacts associated with construction activity and adequate design of facilities. The adverse impacts to geology, soils and seismicity have been somewhat offset by the mitigation included in this analysis.

Impairment

Alternative 3 would result in local, short and long-term, minor adverse impacts to geology, soils and seismicity in The Marine Mammal Center project area. The adverse effects of this alternative would be localized and only slightly detectable. The Marine Mammal Center Project would not

be expected to have an overall effect on geology, soils and seismicity in the area, due to the temporary duration of construction activity and the mitigation measures included in the project. These local adverse impacts would not be of sufficient magnitude or nature to impair the integrity of biological resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 3 would not impair resources or park values for future generations.

Alternative 4

Analysis

Earthwork undertaken for this alternative would involve excavation of approximately 1,600 cubic yards of material, primarily in the southwest corner of the existing Center site and the remote parking area, and placement of approximately 2,000 cubic yards of fill. Under Alternative 4, a perimeter roadway would be constructed but would be contained within the existing site footprint and fewer new buildings would be constructed. The impacts related to settlement, landsliding, soil erosion, and seismic hazards identified under Alternative 2 also would apply to this alternative, although the extent of the impacts would be incrementally smaller under this alternative. Impacts related to construction of the remote parking area identified under Alternative 3 also would apply to this alternative; the extent of these impacts also would be incrementally smaller, due to the smaller parking area proposed under this alternative.

Impact Significance after Mitigation Included in the Project. Local, Short and long-term, Minor - Moderate, Adverse Impact.

Summary of Alternative 4 Impacts. Alternative 4 would have local, short and long-term, minor - moderate, adverse effect on geology, soils and seismicity due to impacts associated with construction activity and adequate design of facilities. The adverse impacts to geology, soils and seismicity have been somewhat offset by the mitigation included in this analysis.

Impairment

Alternative 4 would result in a local, short and long-term, minor - moderate, adverse impacts to geology, soils and seismicity in The Marine Mammal Center project area. The adverse effects of this alternative would be localized but clearly detectable. The Marine Mammal Center Project would not be expected to have an overall effect on geology, soils and seismicity in the area, due to the temporary duration of construction activity and the mitigation measures included in the project. These local adverse impacts would not be of sufficient magnitude or nature to impair the integrity of biological resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 4 would not impair resources or park values for future generations.

Hazardous Materials

Alternative 1

Analysis

Under Alternative 1, none of the facilities of the proposed project would be implemented. Lead-based paint and asbestos is present in several structures constructed prior to 1950 (McKewan,

2003). Because no activity is proposed that would disturb the lead-based paint and asbestos, Alternative 1 would have no effect with respect to these materials. They would continue to be managed in place.

Impact Significance. No effect.

Summary of Alternative 1 Impacts. Alternative 1 would bring about no new impacts from hazardous materials.

Impairment

Alternative 1 would result in no new impacts to existing conditions. Therefore, Alternative 1 would not impair resources or park values for future generations due to impacts from hazardous materials.

Alternative 2

Analysis

Construction-related Effects from exposure to Hazardous Materials. Lead-based paint and asbestos are present in structures constructed prior to 1950. Under Alternative 2, proposed building demolition could disturb these materials and expose construction workers to hazardous levels of lead-based paint and asbestos. This would result in a moderate, adverse impact. Mitigation measures included in Appendix A address worker safety hazards that may arise during renovation , including respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, and training among other best management practices. These mitigations would reduce this impact to minor but still adverse.

Construction activities would involve the use of certain hazardous materials such as fuels, oils, paint, solvents and glues. Inadvertent release of large quantities of these materials into the environment could adversely impact soil, surface waters, or groundwater quality. However, the on-site storage and/or use of large quantities of materials capable of impacting soil and groundwater are not typically necessary for a project of this type. Implementation of Mitigation Measures included in Appendix A for handling of hazardous materials during construction would reduce these impacts to minor adverse.

Summary of Alternative 2 Impacts. Alternative 2 could cause local, short-term, minor, adverse impacts from hazardous materials.

Impairment

With the inclusion of described mitigations, Alternative 2 would not impair resources or park values for future generations due to impacts from hazardous materials.

Alternative 3

Analysis

Construction-related Effects from exposure to Hazardous Materials. Lead-based paint and asbestos are present in structures constructed prior to 1950. As under Alternative 2 described above, proposed building demolition could disturb these materials and expose construction workers to hazardous levels of lead-based paint and asbestos. This would result in a moderate, adverse impact. Mitigation measures included in Appendix A address worker safety hazards that

may arise during renovation, including respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, and training among other best management practices. These mitigations would reduce this impact to minor but still adverse.

Construction activities would involve the use of certain hazardous materials such as fuels, oils, paint, solvents and glues. Inadvertent release of large quantities of these materials into the environment could adversely impact soil, surface waters, or groundwater quality. However, the on-site storage and/or use of large quantities of materials capable of impacting soil and groundwater are not typically necessary for a project of this type. Implementation of Mitigation Measures included in Appendix A for handling of hazardous materials during construction would reduce these impacts to minor adverse.

Summary of Alternative 3 Impacts. Alternative 3 could cause local, short-term, minor, adverse impacts from hazardous materials.

Impairment

With the inclusion of described mitigations, Alternative 3 would not impair resources or park values for future generations due to impacts from hazardous materials.

Alternative 4

Analysis

Construction-related Effects from exposure to Hazardous Materials. Lead-based paint and asbestos are present in structures constructed prior to 1950. As under Alternatives 2 and 3 described above, proposed building demolition could disturb these materials and expose construction workers to hazardous levels of lead-based paint and asbestos. This would result in a moderate, adverse impact. Mitigation measures included in Appendix A address worker safety hazards that may arise during renovation, including respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, and training among other best management practices. These mitigations would reduce this impact to minor but still adverse.

Construction activities would involve the use of certain hazardous materials such as fuels, oils, paint, solvents and glues. Inadvertent release of large quantities of these materials into the environment could adversely impact soil, surface waters, or groundwater quality. However, the on-site storage and/or use of large quantities of materials capable of impacting soil and groundwater are not typically necessary for a project of this type. Implementation of Mitigation Measures included in Appendix A for handling of hazardous materials during construction would reduce these impacts to minor adverse.

Summary of Alternative 4 Impacts. Alternative 4 could cause local, short-term, minor, adverse impacts from hazardous materials.

Impairment

With the inclusion of described mitigations, Alternative 4 would not impair resources or park values for future generations due to impacts from hazardous materials.

Air Quality

Alternative 1

Analysis

Under Alternative 1, none of the facilities of the proposed project would be implemented. Potential impacts from construction related emissions would not occur thus, Alternative 1 would have no effect with respect to air quality.

Impact Significance. No effect.

Summary of Alternative 1 Impacts. Alternative 1 would not negatively impact air quality.

Impairment

Alternative 1 would result in no new impacts to existing conditions. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Construction-related Effects to Air Quality. Construction of the project would generate fugitive dust (including PM_{10}) and other criteria air pollutants from exhaust emissions. A large portion of the total construction dust emissions would result from trenching and excavation activities. Dust emissions would vary from day to day, depending on the phase of construction, the silt content of the soil, and the weather. Daily emissions would depend greatly upon whether construction of the various project components (e.g., excavation of underground storage tank and associated pipelines) would occur simultaneously.

In regards to PM_{10} emissions, the Bay Area Air Quality Management District indicates that if control measures are implemented, PM_{10} emissions from construction activities would be considered a minor impact. Dust control measures identified in Appendix A would ensure that this adverse impact remains minor.

Summary of Alternative 2 Impacts. Alternative 2 could cause local, short-term, minor, adverse impacts to air quality.

Impairment

With the inclusion of described mitigations, Alternative 2 would not impair resources or park values for future generations.

Alternative 3

Analysis

Construction-related Effects to Air Quality. Construction of the project would generate fugitive dust (including PM_{10}) and other criteria air pollutants from exhaust emissions. A large portion of the total construction dust emissions would result from trenching and excavation activities. Dust emissions would vary from day to day, depending on the phase of construction, the silt content of the soil, and the weather. Daily emissions would depend greatly upon whether construction of the various project components (e.g., excavation of underground storage tank and associated pipelines) would occur simultaneously.

In regards to PM_{10} emissions, the Bay Area Air Quality Management District indicates that if control measures are implemented, PM_{10} emissions from construction activities would be considered a minor impact. Dust control measures identified in Appendix A would ensure that this adverse impact remains minor.

Summary of Alternative 3 Impacts. Alternative 3 could cause local, short-term, minor, adverse impacts to air quality.

Impairment

With the inclusion of described mitigations, Alternative 3 would not impair resources or park values for future generations.

Alternative 4

Analysis

Construction-related Effects to Air Quality. Construction of the project would generate fugitive dust (including PM_{10}) and other criteria air pollutants from exhaust emissions. A large portion of the total construction dust emissions would result from trenching and excavation activities. Dust emissions would vary from day to day, depending on the phase of construction, the silt content of the soil, and the weather. Daily emissions would depend greatly upon whether construction of the various project components (e.g., excavation of underground storage tank and associated pipelines) would occur simultaneously.

In regards to PM_{10} emissions, the Bay Area Air Quality Management District indicates that if control measures are implemented, PM_{10} emissions from construction activities would be considered a minor impact. Dust control measures identified in Appendix A would ensure that this adverse impact remains minor.

Summary of Alternative 4 Impacts. Alternative 4 could cause local, short-term, minor, adverse impacts to air quality.

Impairment

With the inclusion of described mitigations, Alternative 4 would not impair resources or park values for future generations.

Noise

Alternative 1

Analysis

Under Alternative 1, none of the facilities of the proposed project would be implemented. Potential noise impacts from construction would not occur thus, Alternative 1 would have no effect with respect to noise emissions.

Impact Significance. No effect.

Summary of Alternative 1 Impacts. Alternative 1 would have no increased impacts from noise.

Impairment

Alternative 1 would result in no new impacts to existing conditions. Therefore, Alternative 1 would not impair resources or park values for future generations in terms of increased noise.

Alternative 2

Analysis

Operation-related Impacts from Noise. Operational noise levels at the treatment site would fluctuate depending on the particular type of equipment being used on site and the number of animals in residence. Barking marine mammals are part of the existing site and the noise produced by these animals is not expected to increase or change. The new buildings at the treatment site could have a potential beneficial impact in shielding this existing noise source from receptors at Fort Cronkhite (to the west). These buildings are not expected to amplify the existing barking noises to the east.

Impact Significance. Minor effect.

Summary of Alternative 2 Impacts. Alternative 2 would have minor, beneficial increased impacts from noise.

Impairment

Alternative 2 would result in minor impacts to existing conditions. Therefore, Alternative 2 would not impair resources or park values for future generations in terms of increased noise.

Construction-related Impacts from Noise. Construction noise levels at the treatment site would fluctuate depending on the particular type, number, and duration of use of various types of construction equipment. The effect of construction noise would depend upon the type of construction activity, the distance between construction activities and the nearest noise sensitive uses, and the existing noise levels at those uses.

Typical noise levels generated by different types of standard construction equipment are described below (FTA, 1995):

- Equipment Noise Level at 50 feet (dBA, Leq)
- backhoes 80
- shovel 82
- dozers 85
- scrapers 89
- truck 88
- paver 89
- pumps 76
- generators 81
- compressors 81
- Jack hammers 88
- pile drivers 101

Excavation activities would most probably involve the use of an excavator shovel, which as shown above would generate approximately 82 dBA at 50 feet. The receptors nearest this noise source

would be volunteers and staff at the treatment site, visitors to the Center's education program and the animals on site at the time of construction. These temporary noise levels would not be in keeping with NPS goals to restore and maintain the natural soundscape of the park setting. Mitigation Measures described in Appendix A include limiting construction to the off-season for animal care and weekdays and potentially limiting education programs during periods of concentrated construction. These mitigations would reduce the severity of this impact to minor adverse.

Summary of Alternative 2 Impacts. Alternative 2 would cause local, short-term, minor, adverse impacts from increased noise.

Impairment

With the inclusion of described mitigations, Alternative 2 would not impair resources or park values for future generations due to increased noise.

Alternative 3

Analysis

Operation-related Impacts from Noise. As with Alternative 2, operational noise levels at the treatment site would fluctuate depending on the particular type of equipment being used on site and the number of animals in residence. Barking marine mammals are part of the existing site and the noise produced by these animals is not expected to increase or change. The new buildings at the treatment site could have a potential beneficial impact in shielding this existing noise source from receptors at Fort Cronkhite (to the west). These buildings are not expected to amplify the existing barking noises to the east.

Impact Significance. Minor effect.

Summary of Alternative 3 Impacts. Alternative 3 would have minor, beneficial increased impacts from noise.

Impairment

Alternative 3 would result in minor impacts to existing conditions. Therefore, Alternative 3 would not impair resources or park values for future generations in terms of increased noise.

Construction-related Impacts from Noise. Construction noise levels at the treatment site would fluctuate depending on the particular type, number, and duration of use of various types of construction equipment. The effect of construction noise would depend upon the type of construction activity, the distance between construction activities and the nearest noise sensitive uses, and the existing noise levels at those uses.

Typical noise levels generated by different types of standard construction equipment are described above under the discussion of Alternative 2. Excavation activities would most probably involve the use of an excavator shovel, which as shown above would generate approximately 82 dBA at 50 feet. The receptors nearest this noise source would be volunteers and staff at the treatment site, visitors to The Center's education program and the animals on site at the time of construction. These temporary noise levels would not be in keeping with NPS goals to restore and maintain the natural soundscape of the park setting. Mitigation Measures described in Appendix A include limiting construction to the off-season for animal care and weekdays and

potentially limiting education programs during periods of concentrated construction. These mitigations would reduce the severity of this impact to minor adverse.

Summary of Alternative 3 Impacts. Alternative 3 would cause local, short-term, minor, adverse impacts from increased noise.

Impairment

With the inclusion of described mitigations, Alternative 3 would not impair resources or park values for future generations due to increased noise.

Alternative 4

Analysis

Operation-related Impacts from Noise. As with Alternative 2, operational noise levels at the treatment site would fluctuate depending on the particular type of equipment being used on site and the number of animals in residence. Barking marine mammals are part of the existing site and the noise produced by these animals is not expected to increase or change. The new buildings at the treatment site could have a potential beneficial impact in shielding this existing noise source from receptors at Fort Cronkhite (to the west). These buildings are not expected to amplify the existing barking noises to the east.

Impact Significance. Minor effect.

Summary of Alternative 4 Impacts. Alternative 4 would have minor, beneficial increased impacts from noise.

Impairment

Alternative 4 would result in minor impacts to existing conditions. Therefore, Alternative 4 would not impair resources or park values for future generations in terms of increased noise.

Construction-related Impacts from Noise. Construction noise levels at the treatment site would fluctuate depending on the particular type, number, and duration of use of various types of construction equipment. The effect of construction noise would depend upon the type of construction activity, the distance between construction activities and the nearest noise sensitive uses, and the existing noise levels at those uses.

Typical noise levels generated by different types of standard construction equipment are described above under the discussion of Alternative 2. Excavation activities would most probably involve the use of an excavator shovel, which as shown above would generate approximately 82 dBA at 50 feet. The receptors nearest this noise source would be volunteers and staff at the treatment site, visitors to The Center's education program and the animals on site at the time of construction. These temporary noise levels would not be in keeping with NPS goals to restore and maintain the natural soundscape of the park setting. Mitigation Measures described in Appendix A include limiting construction to the off-season for animal care and weekdays and potentially limiting education programs during periods of concentrated construction. These mitigations would reduce the severity of this impact to minor adverse.

Summary of Alternative 4 Impacts. Alternative 4 would cause local, short-term, minor, adverse impacts from increased noise.

Impairment

With the inclusion of described mitigations, Alternative 4 would not impair resources or park values for future generations due to increased noise.

Cultural Resources

Alternative 1

Analysis

Under Alternative 1, no changes to the existing facilities would be implemented. Maintenance of the cultural resources (namely the historic buildings at Fort Cronkhite) would continue to be governed by the 1992 Section 106 Programmatic Agreement among the NPS, the California Historic Preservation Office, and the Advisory Council on Historic Preservation. As a result, potential improvements or other projects would continue to be subject to consultation and review, and consequently, cultural resources would be protected as they are currently.

Impact Significance. No Impact.

Summary of Alternative 1 Impacts. Alternative 1 would bring about no new impacts on cultural and historic resources.

Impairment

Alternative 1 would result in no new impacts to existing conditions. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Construction-related Effects on Archaeology. Under Alternative 2, portions of area now in grasslands would be excavated to construct new parking areas. Foundations would also be built for proposed new buildings. Because of the potential for the discovery of unidentified or unexpected subsurface archaeological resources during ground disturbance, this would be considered a moderate, adverse impact. However, mitigation measures outlined in Appendix A, Mitigation Measures, such as construction monitoring and avoidance would reduce this adverse impact to minor to moderate.

Impact Significance After Mitigation Included in the Project. Local, Long-term, Minor to Moderate, Adverse Impact.

Operation-related Effects on Historic and Cultural Landscape Resources. Alternative 2 would alter the project site through the addition of three new buildings and several remodeled facilities. No historic buildings would be demolished under this Alternative. Two historic buildings now in use by the Center at Fort Cronkhite would be vacated and managed by NPS. While the impact of vacant historic buildings would be considered in the Section 106 Consultation, it is anticipated that the impact would not be adverse. The fact that the Park has an active Section 110 program and fully intends to find uses for these buildings would ensure their continued preservation. Impacts to the views and vistas that now contribute to the cultural landscape would be considered moderate adverse impacts. The cumulative effects of adding 3 new buildings to the historic district would be assessed in the Section 106 Consultation for any possible immediate or

cumulative effects to the FBBC National Register property. Since these new structures are on a previously developed area and are screened from general view by the topography of the site, the effects would not be adverse. New construction would be compatibly designed and sited in keeping with the character-defining elements of the Forts Barry, Baker and Cronkhite Historical District. Compatibility Guidelines, now under development, would encourage the design of new buildings to be compatible in scale, massing, color, material and character with the Historic district. This would have a beneficial impact as this could improve the degraded and inconsistent structures that now exist on the site. Implementation of mitigation measures described in Appendix A regarding adoption of Compatibility Guidelines being currently negotiated for this project would reduce impacts from this Alternative but they would remain adverse.

Impact Significance After Mitigation Included in the Project. Local, long-term, moderate, adverse impact. These impacts would not have significant adverse effects on the National Register District.

Summary of Alternative 2 Impacts. Alternative 2 would have both adverse and beneficial impacts on historic and cultural resources. On balance these impacts would remain moderate and adverse.

Impairment

Alternative 2 would result in local, long-term, moderate adverse impacts however would not impair resources or park values for future generations.

Alternative 3

Analysis

Construction-related Effects on Archaeology. Under Alternative 3, portions of the old kennel site, now in grasslands would be developed to construct new parking areas. Foundations would also be built for proposed new buildings. Because of the potential for the discovery of unidentified or unexpected subsurface archaeological resources during ground disturbance, this would be considered a moderate, adverse impact. However, mitigation measures outlined in Appendix A, Mitigation Measures, such as construction monitoring and avoidance would reduce this adverse impact to minor to moderate.

Impact Significance After Mitigation Included in the Project. Local, Long-term, Minor to Moderate, Adverse Impact.

Operation-related Effects on Historic and Cultural Landscape Resources. Alternative 3 would alter the project site through the addition of two new buildings and several remodeled facilities. No historic buildings are being demolished under this Alternative. Two historic buildings now in use by the Center at Fort Cronkhite would be vacated but these buildings would become the responsibility of NPS and would thus continue to be protected. Impacts to the views and vistas that now contribute to the cultural landscape would be considered moderate adverse impacts. New construction would be compatibly designed and sited in keeping with the character-defining elements of the Forts Barry, Baker and Cronhkite Historical District. Compatibility Guidelines, now under development, would encourage the design of new buildings to be compatible in scale, massing, color, material and character with the Historic district. This would have a beneficial impact as these changes would improve the degraded and inconsistent structures that now exist on the site. Implementation of mitigation measures described in Appendix A regarding adoption

of Compatibility Guidelines being currently negotiated for this project would reduce impacts from this Alternative but they would remain adverse.

Impact Significance After Mitigation Included in the Project. Local, long-term, moderate, adverse impact. These impacts would not have significant adverse effects on the National Register District.

Summary of Alternative 3 Impacts. Alternative 3 would have both adverse and beneficial impacts on historic and cultural resources. On balance these impacts would remain moderate and adverse.

Impairment

Alternative 3 would result in local, long-term, moderate adverse impacts however would not impair resources or park values for future generations.

Alternative 4

Analysis

Construction-related Effects on Archaeology. Under Alternative 4, a reduced area (as compared to Alternative 3)of the old kennel site, now in grasslands would be excavated to construct new parking areas. Foundations would also be built for proposed new buildings but within a smaller footprint that other alternatives. Because of the potential for the discovery of unidentified or unexpected subsurface archaeological resources during ground disturbance, this would be considered a moderate, adverse impact. However, mitigation measures outlined in Appendix A, Mitigation Measures, such as construction monitoring and avoidance would reduce this adverse impact to minor to moderate.

Impact Significance After Mitigation Included in the Project. Local, Long-term, Minor to Moderate, Adverse Impact.

Operation-related Effects on Cultural Landscape Resources. Alternative 4 would alter the project site through the addition of two new buildings and several remodeled facilities. No historic buildings are being demolished under this Alternative, however impacts to the views and vistas that now contribute to the cultural landscape would be considered moderate adverse impacts. New construction would be compatibly designed and sited in keeping with the character-defining elements of the Forts Barry, Baker and Cronkhite Historical District. Compatibility Guidelines, now under development, would encourage the design of new buildings to be compatible in scale, massing, color, material and character with the Historic district. These changes would have a beneficial impact as this could improve the degraded and inconsistent structures that now exist on the site. Implementation of mitigation measures described in Appendix A regarding adoption of Compatibility Guidelines being currently negotiated for this project would reduce impacts from this Alternative to minor, adverse.

Impact Significance After Mitigation Included in the Project. Local, long-term, minor, adverse impact. These impacts would not have significant adverse effects on the National Register District.

Summary of Alternative 4 Impacts. Alternative 4 would have both adverse and beneficial impacts on historic and cultural resources. On balance these impacts would be minor and adverse.

Impairment

Alternative 4 would result in local, long-term, minor adverse impacts and thus would not impair resources or park values for future generations.

Transportation

Alternative 1

Analysis

Under Alternative 1, none of the facilities of the proposed project would be implemented. The Center would continue to function under its current intensity. Thus there are no additional vehicle trips generated by this alternative and no changes to site access, on-site circulation or parking. On the other hand, under Alternative 1, inefficient and unsafe parking and circulation scenarios would continue to exist. At present, the 13 visitor spaces on the access road do not allow for efficient or safe passage by either cars or pedestrians on this access route.

Impact Significance. Local, Long-term, Moderate, Adverse Impact.

Summary of Alternative 1 Impacts. Alternative 1 would have a local, long-term, moderate, adverse effect on parking and circulation as ongoing impacts of inefficient and unsafe parking and circulation scenarios that would continue to exist.

Impairment

Alternative 1 would result in a local, long-term, moderate, adverse impact to parking and circulation in the project area. However, the local adverse impacts would not affect the integrity of transportation systems or circulation elements identified in relevant planning documents. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Operation-related Effects on Transportation. Alternative 2 includes construction of an 18-foot, one-way perimeter road (ring road) around the treatment site and a new parking lot on the west side of the site, accessed off of the main access road by a two-way portion of the ring road. The eastern portion of the ring road would be gated and closed to the general public and would be proposed to service daily deliveries by large trucks for garbage pickup, fish deliveries, supplies, and animal admissions. The eastern portion of the ring road is designed to separate the vehicles from the animal patients, as well as the volunteers, staff, and visitors on foot. This alternative would provide a total of 78 parking spaces, including 41 standard parking spaces and 2 handicapped parking spaces in the new lot west of the Marine Science Community Education Center, and 19 parallel parking spaces along the access road. The Center would use at least 16 additional spaces outside their assigned lands for daily operation. Buses would park in or near the NPS Maintenance Yard.

This analysis focuses on the likely increase in vehicle trips that could result from the project alternatives. The action alternatives are generally intended to upgrade existing operations and would not necessarily generate increases in vehicle trips despite the net increase in built square footage. It is difficult to find comparable projects that have expanded square footage and improved facilities but not grown an existing program. The Lindsay Wildlife facility undertook a

similar upgrade and has not experienced a significant increase in visitors. However, a new facility could attract more people, as could word-of-mouth. Using best professional judgment it is estimated that under Alternative 2 an increase of up to ten visitors might be expected on peak days. This is approximately 10 percent of visitorship on peak days. Given current traffic volumes, this additional traffic (less than 15 vehicle trips as not all visitors would come in single cars) would represent an increase of less than 0.10 percent over current conditions on Bunker Road and would thus be considered negligible, adverse.

Under this alternative, trips that currently terminate at the administrative facilities at Ft. Cronkhite would be reassigned to terminate at the Center, but would not generate new trips to the area on Bunker Road east of the Center. There would be a reduction in the vehicle trips required between Fort Cronkhite and the treatment site.

The occasional special event at the Center could result in impacts to vehicle queues at the Barry Tunnel and at the intersection of Bunker Road and Alexander Road if conducted on Saturday or Sunday afternoons. Currently, the Center conducts up to six such events per year (which would be the same as future conditions); so no impact would be generated relative to existing conditions.

Reuse of buildings that the Center would vacate at Ft. Cronkhite would be anticipated under this Alternative. No particular future use has been identified for the buildings at this time. These buildings consist of approximately 2,760 square feet of space. The type of new use in these buildings could impact future conditions. As an example, an office or similar facility may be expected to generate approximately 104 daily vehicle trips, based on standard industry tip generation data maintained by the Institute of Transportation Engineers for single-tenant office buildings. This would represent an increase of approximately four percent on Bunker Road. Sufficient capacity exists on Bunker Road to accommodate those additional trips, particularly on weekdays, thus this impact would be considered negligible as well.

On-site circulation and parking would be improved under Alternative 2. However, improvements to the access road could be required as traffic is redirected along this route.

Impact Significance. Local, Long-term, Negligible - Minor Adverse Impact.

Construction-related Effects on Transportation. Construction traffic generated by trucks and other vehicles traveling to and from the site during construction of the improvements envisioned by this Alternative could potentially impact local roadways.

Bunker Road is the most level and direct route to the project site. The topography, curves and heavier usage experienced on Conzelman Road constrains truck traffic to and from the Center. Despite vehicle queuing at the Barry Tunnel, Bunker Road is the more appropriate route for construction vehicles. Given the capacity of the road utilized during peak weekend periods it is clear there is sufficient remaining capacity on weekdays to handle the additional construction requirements.

Appendix A contains general recommendations regarding construction traffic routing and phasing which would minimize potential construction impacts to minor adverse levels.

Impact Significance after Mitigation Included in the Project. Local, Short and Long -term, Negligible - Minor, Adverse Impact.

Summary of Alternative 2 Impacts. Alternative 2 would have local, short and long-term, negligible - minor, adverse effect on transportation due to impacts associated with construction activity and increased visitor use. The adverse impacts to transportation would be offset by the mitigation included in the Project (See Appendix A).

Impairment

Alternative 2 would result in a local, short and long-term, negligible - minor, adverse effect on transportation in The Marine Mammal Center project area. The adverse effects of this alternative would be localized and only slightly detectable. The Marine Mammal Center Project would not be expected to have an overall effect on transportation in the area, due to the temporary duration of construction activity and the mitigation measures included in the project. These local impacts would not be of sufficient magnitude or nature to impair the integrity of transportation and circulation in the Park. Therefore, Alternative 2 would not impair resources or park values for future generations.

Alternative 3

Analysis

Operation-related Effects on Transportation. Similar to Alternative 2, Alternative 3 includes construction of an 18-foot wide, one-way ring road to service emergency vehicles and daily deliveries by large trucks. This one-way road would be closed to the public and would encircle the entire facility. This alternative would provide a total of 78 parking spaces, including 2 handicapped parking spaces at the treatment site and 60 standard parking spaces and in the new lot on the former kennel site. The Center would use at least 16 additional spaces outside their assigned lands for daily operation. Buses would park in or near the NPS Maintenance Yard.

A new access road would be constructed to connect this remote parking area to the old access road and a 200-foot path would connect the remote parking area to the Center. A sense of arrival would be established with a walkway up the hill and around to the main entrance. Handicapped parking would be located adjacent to the facilities, in conformance with UFAS and ADA standards. Though located away from the Center's facilities, the remote lot would result in reduced vehicle activity in the vicinity of Center patients, and would be partially visually screened by the topography in the area.

As described above in Alternative 2, the action alternatives are intended to upgrade existing operations and would not necessarily generate a noticeable increase in vehicle trips despite the net increase in built square footage. It is estimated that under Alternative 3 an increase of up to ten visitors might be expected on peak days. This is approximately 10% of visitorship on peak days. Given current traffic volumes, this additional traffic (less than 15 vehicle trips as not all visitors would come in single cars) would represent an increase of less than 0.10 percent over current conditions on Bunker Road and would thus be considered negligible, adverse.

As with Alternative 2, trips that currently terminate at the administrative facilities at buildings in Ft. Cronkhite would be reassigned to terminate at the Center, but would not generate new trips to the area on Bunker Road east of the Center.

Reuse of buildings at Ft. Cronkhite for another tenant would be anticipated under this Alternative, as the Center would vacate these buildings. No particular use has been identified for these buildings, which consist of approximately 2,760 square feet of space. Reuse of the buildings,

depending on the NPS selected uses, could impact future conditions. As an example, an office or similar facility may be expected to generate approximately 104 daily vehicle trips, based on standard industry tip generation data maintained by the Institute of Transportation Engineers for single-tenant office buildings. This would represent an increase of approximately four percent on Bunker Road. Sufficient capacity exists on Bunker Road to accommodate those additional trips, particularly on weekdays, thus this impact would be considered negligible as well.

Based upon this review, Alternative 3 would provide improved circulation and access over existing conditions for vehicles and pedestrians on-site. Thus this would be considered a moderate beneficial impact.

Impact Significance. Local, Long-term, Negligible – Moderate Beneficial Impact.

Construction-related Effects on Transportation. As described above under Alternative 2, Construction traffic generated by trucks and other vehicles traveling to and from the site during construction of the improvements envisioned by this Alternative could potentially impact local roadways. Appendix A contains general recommendations, as described above which would minimize potential construction impacts to minor adverse levels.

Impact Significance after Mitigation Included in the Project. Local, Short and Long -term, Negligible - Minor, Adverse Impact.

Summary of Alternative 3 Impacts. Alternative 3 would have local, short and long-term, negligible - minor, adverse and beneficial effects on transportation and circulation due to impacts associated with construction activity and adequate design of facilities. The adverse impacts to transportation have been offset by the mitigation included in the project (See Appendix A).

Impairment

Alternative 3 would result in local, short and long-term, negligible - minor, adverse and beneficial effects on transportation and circulation in The Marine Mammal Center project area. The adverse effects of this alternative would be localized and only slightly detectable. The Marine Mammal Center Project would not be expected to have an overall effect on transportation in the area, due to the temporary duration of construction activity and the mitigation measures included in the project. These local impacts would not be of sufficient magnitude or nature to impair the integrity of transportation and circulation in the Park. Therefore, Alternative 3 would not impair resources or park values for future generations.

Alternative 4

Analysis

Like other action alternatives, Alternative 4 includes construction of a one-way ring road to service emergency vehicles and daily deliveries to the facilities. Under this alternative the footprint of the new ring road stays primarily within the existing footprint of the current Center treatment site. This alternative would provide a total of 78 parking spaces, including 2 handicapped parking spaces at the treatment site and 40 standard parking spaces in the new lot at the former kennel site. The Center would use at least 16 additional spaces outside their assigned lands for daily operation. 20 spaces would continue to be used at Fort Cronkhite. Buses would park in or near the NPS Maintenance Yard.

The remote parking lot would reduce the vehicle activity in the vicinity of Center patients, and would be partially screened by the topography in the area. A new access road would be constructed to connect this remote parking area to the old access road and a 200-foot long path would connect the remote parking area to the Center. Parking for use of the Ft. Cronkhite occupied buildings would continue to be accommodated in the large lot near the Ft. Cronkhite building complex and along the upper access road in that area (unchanged from current conditions).

As with Alternatives 2 and 3, Alternative 4 is generally intended to upgrade existing operations and would not necessarily generate significant increases in vehicle trips despite the net increase in built square footage. Because of the reduced square footage of the build out area under this alternative, an increase of less than ten visitors might be expected on peak days. This is approximately 8 percent of visitorship on peak days. Given current traffic volumes, this additional traffic (less than 10 vehicle trips as not all visitors would come in single cars) would represent an increase of less than 0.8 percent over current conditions on Bunker Road and would thus be considered negligible, adverse.

Impact Significance after Mitigation Included in the Project. Local, Short and Long -term, Negligible - Minor, Adverse Impact.

Summary of Alternative 2 Impacts. Alternative 4 would have local, short and long-term, negligible - minor, adverse and beneficial effects on transportation and circulation due to impacts associated with construction activity and adequate design of facilities. The adverse impacts to transportation have been offset by the mitigation included in this analysis.

Impairment

Alternative 4 would result in local, short and long-term, negligible - minor, adverse and beneficial effects on transportation and circulation in The Marine Mammal Center project area. The adverse effects of this alternative would be localized and only slightly detectable. The Marine Mammal Center Project would not be expected to have an overall effect on transportation in the area, due to the temporary duration of construction activity and the mitigation measures included in the project. These local impacts would not be of sufficient magnitude or nature to impair the integrity of transportation and circulation in the Park. Therefore, Alternative 4 would not impair resources or park values for future generations.

Visual Resources

Visual simulations were developed for The Marine Mammal Center project area. Two vantage points of The Marine Mammal Center were selected. The first vantage point is from an old bunker located on a ridge above The Center west of the project site (see figure C-1 in Appendix C, Visual Simulations). The second vantage point of The Marine Mammal Center is from Bunker Road near the Marin Headlands Visitor Center (see figure C-5 in Appendix C, Visual Simulations). The first vantage point provides medium-range views of the project site.

Alternative 1

Analysis

Operation-related Effects on Visual Resources. Under Alternative 1, The Marine Mammal Center would continue to be visually characterized as a mix of one-story utilitarian architectural styles

and makeshift structures comprising approximately 18,000 square feet of building space on the treatment site. The exposed infrastructure, primarily the LSS and water filtration system are a visual intrusion on the landscape at the site. The architectural style of The Center's facilities would continue to be somewhat incoherent and not well integrated with the setting. Site lighting would continue to intrude upon night sky views in the project area.

The built features of The Marine Mammal Center would continue to be visible from vantage points in the project area, including medium range views of the facility from the historic bunker west of the site (see figure C-1 in Appendix C, Visual Simulations) and medium- to long-range views from Bunker Road near the Marin Headlands Visitor Center (see figure C-5 in Appendix C, Visual Simulations). The features of the site moderately intrude upon the setting of the Marin Headlands.

Impact Significance. Local, Long-term, Moderate, Adverse Impact.

Summary of Alternative 1 Impacts. Alternative 1 would have a local, long-term, moderate, adverse effect on visual resources associated with The Center's cluttered site and mixed architectural style with other historic facilities in the area and the intrusion of built features on the natural landscape of the Marin Headlands.

Impairment

Alternative 1 would result in a local, long-term, moderate, adverse impact to visual resources in the project area. The adverse effect of this alternative on visual resources would be localized to the project area and would not be expected to have an overall effect on the visual resources of the area. The local adverse impacts to visual resources would not be of sufficient magnitude or nature to impair the integrity of scenic resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Construction-related Effects on Visual Resources. Construction of The Marine Mammal Center Project would have a short-term, adverse impact on visual resources in the project area during the construction period. Construction activity, including construction fencing, staging areas, heavy-duty equipment, ground disturbance, and increased truck traffic on local roadways, would be visible by recreational users and park staff in the project area,. Construction activity would intermittently block visitors from viewing marine mammals on-site during the construction period. Appendix A, Mitigation Measures, identifies visual resources protection measures such as fencing the construction staging area to provide visual screening and consolidating construction equipment and materials at the staging areas. Although these mitigation measures would somewhat reduce the adverse visual effect of construction activity, it would not reduce the intensity of the adverse impact.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Moderate, Adverse Impact.

Operation-related Effects on Visual Resources. Implementation of Alternative 2 would result in increased developed facilities at The Marine Mammal Center site. Alternative 2 would include approximately 35,200 square feet of building space in predominantly 2-story structures at the treatment site, including 7,700 square feet of underground space. The increase in developed building space and the conversion of buildings on the site from one-story (13 feet high) to predominantly two-story (26 feet high) buildings would increase the visibility of built structures in the natural landscape of the Marin Headlands. From the historic bunker west of the site (see figure C-2 in Appendix C, Visual Simulations) the new 2-story built features would be noticeably more visible in the natural landscape than the existing built features. Paved areas and parked cars would be limited to the existing treatment site. From the NPS Marin Headlands visitor center area (see figure C-6 in Appendix C, Visual Simulations) the new built features would be more visible in the natural landscape than the existing built features. New buildings could be seen after dark if office lights are in use. The intrusion of new built features on the natural Marin Headlands landscape would have a local, long-term, moderate, adverse impact on visual resources.

A number of design elements would mitigate the visual impact of the Center, including a cohesive architectural design of Center facilities that would incorporate elements of the historic architectural style of Fort Cronkhite buildings and site landscaping and an entry porch designed to enhance visitors' sense of arrival. The design elements of Alternative 2 would have a local, long-term, minor, beneficial impact on visual resources. Also beneficial would be the removal of the highly visible clutter at the former kennel site and the site's restoration to natural vegetation.

Impact Significance. Local, Long-term, Minor, Adverse Impact**.**

Summary of Alternative 2 Impacts. Alternative 2 would have local, long-term, moderate, adverse effect on visual resources due to visual intrusions associated with construction activity, such as construction equipment and ground disturbance, and the introduction of new built features in the natural landscape of the Marin Headlands. The adverse visual resource impacts would be somewhat offset by the design elements at The Marine Mammal Center and mitigation measures included in Appendix A (Historic Compatability Guidlelines).

Impairment

Alternative 2 would result in a local, long-term, moderate, adverse impact to visual resources at The Marine Mammal Center project area. The adverse effect of this alternative on visual resources would be localized but clearly detectable. The Marine Mammal Center Project would not be expected to have an overall effect on the visual resources of the area, due to the temporary duration of construction activity. The local adverse impacts to visual resources would not be of sufficient magnitude or nature to impair the integrity of visual resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 2 would not impair resources or park values for future generations.

Alternative 3

Analysis

Construction-related Effects on Visual Resources. Similar to Alternative 2, Alternative 3 would have a short-term, adverse impact on visual resources in the project area during the construction

period. Construction activity would be visible in the project area, including construction fencing, staging areas, heavy-duty equipment, ground disturbance, and increased truck traffic on local roadways. Construction activity would intermittently block visitors from viewing marine mammals on-site during the construction period. Alternative 3 includes construction of a remote parking lot south of the Center; therefore, under Alternative 3 there would be 2 construction sites in the project area and additional activity associated with constructing the proposed remote parking lot. Appendix A, Mitigation Measures, identifies visual resources protection measures such as fencing the construction staging area to provide visual screening and consolidating construction equipment and materials at the staging areas. Although these mitigation measures would somewhat reduce the adverse visual effect of construction activity, it would not reduce the intensity of the adverse impact.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Moderate, Adverse Impact.

Operation-related Effects on Visual Resources. Similar to Alternative 2, implementation of Alternative 3 would result in increased developed facilities at The Center. Alternative 3 would include approximately 35,200 square feet (including 7,700 of below grade storage) in predominantly 2-story structures at the treatment site. The increase in developed building space and the conversion of buildings on the site from one-story (13 feet-high) to predominantly two-story (26 feet-high) buildings would increase the appearance of built structures in the natural landscape of the Marin Headlands. In addition, the establishment of the remote parking area would pave an existing unpaved area. From the old reservoir tank on Old Bunker Road west of the site (see figure C-3 in Appendix C, Visual Simulations) the new 2-story built features, the paved area of the remote parking area and parked cars would be more visible in the natural landscape than the existing built features. From the visitor center area (see figure C-6 in Appendix C, Visual Simulations) the new built features would be more visible in the natural landscape than the existing built features. New buildings could be seen after dark if office lights are in use. The intrusion of new built features on the natural Marin Headlands landscape would have a local, long-term, moderate, adverse impact on visual resources.

Design elements and mitigation measures included in Appendix A (Historic Compatibility Guidelines) would improve views of The Center, including cohesive architectural design of Center facilities and site landscaping. The design elements of Alternative 3 would have a local, long-term, minor, beneficial impact on visual resources.

Impact Significance. Local, Long-term, Minor, Adverse Impact.

Summary of Alternative 3 Impacts. Alternative 3 would have local, long-term, moderate, adverse effect on visual resources due to visual intrusions associated with construction activity, such as construction equipment and ground disturbance, and the introduction of new built features in the former kennel area of the Marin Headlands, including development of a new paved area for the remote parking lot. The adverse visual resource impacts would be somewhat offset by the design elements at The Marine Mammal Center.

Impairment

Similar to Alternative 2, Alternative 3 would result in a local, long-term, moderate, adverse impact to visual resources at The Marine Mammal Center project area. The adverse effect of this

alternative on visual resources would be localized but clearly detectable. Alternative 3 would not be expected to have an overall effect on the visual resources of the area, due to the temporary duration of construction activity and the existing developed features in the area. The local adverse impacts to visual resources would not be of sufficient magnitude or nature to impair the integrity of visual resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 3 would not impair resources or park values for future generations.

Alternative 4

Analysis

Construction-related Effects on Visual Resources. Similar to Alternative 2, Alternative 4 would have a short-term, adverse impact on visual resources in the project area during the construction period. Alternative 4, however, would have considerably less construction activity because of a reduced amount of new buildings (administration and educational uses would be retained at Fort Cronkhite). Construction activity at the treatment site would be visible in the project area, including construction fencing, staging areas, heavy-duty equipment, ground disturbance, and increased truck traffic on local roadways. Construction activity would intermittently block visitors from viewing marine mammals on-site during the construction period. Alternative 4 includes construction of a remote parking lot at the former kennel site; therefore, there would be two construction activity zones in the project area and additional activity associated with constructing the proposed remote parking lot. Appendix A, Mitigation Measures, identifies visual resources protection measures such as fencing the construction staging area to provide visual screening and consolidating construction equipment and materials at the staging areas. Although these mitigation measures would somewhat reduce the adverse visual effect of construction activity, it would not reduce the intensity of the adverse impact.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Moderate, Adverse Impact.

Operation-related Effects on Visual Resources. Similar to Alternative 2, implementation of Alternative 4 would result in increased developed facilities at The Center. Alternative 4 would include approximately 30,200 square feet of above-ground building space (22,670 at the treatment site and 7,590 at Fort Cronkhite) in 1- and 2-story structures at the treatment site. The increase in developed building space and the conversion of some building space on the site from one-story (13 feet) to two-story buildings (26 feet) would increase the appearance of built structures in the natural landscape of the Marin Headlands. In addition, the establishment of the remote parking area would pave an existing unpaved area. From the old reservoir tanks on Old Bunker Road west of the site (see figure C-4 in Appendix C, Visual Simulations) the new 1- and 2-story built features and paved area of the remote parking area would be more visible in the natural landscape than the existing built features. From the visitor center area (see figure C-6 in Appendix C, Visual Simulations) the new built features would be more visible in the natural landscape than the existing built features. The intrusion of new built features on the natural Marin Headlands landscape would have a local, long-term, minor, adverse impact on visual resources.

Similar to Alternative 2, Alternative 4 would improve internal viewing opportunities at the treatment site. Alternative 4 would include a public observation deck of the marine mammal pens

and pools and observation windows in facilities providing opportunities for views of Center work areas. The new viewing opportunities of Alternative 4 would have a local, long-term, minor, beneficial impact on visual resources.

Impact Significance. Local, Long-term, Negligible, Adverse Impact.

Summary of Alternative 4 Impacts. Alternative 4 would have local, long-term, moderate, adverse effect on visual resources due to visual intrusions associated with construction activity, such as construction equipment and ground disturbance, and the introduction of new built features in the natural landscape of the Marin Headlands including development of a new paved area for the remote parking lot. The adverse visual resource impacts would be somewhat offset by the beneficial introduction of new viewing opportunities at The Marine Mammal Center.

Impairment

Similar to Alternative 2, Alternative 4 would result in a local, long-term, moderate, adverse impact to visual resources at The Marine Mammal Center project area. The adverse effect of this alternative on visual resources would be localized but clearly detectable. Alternative 4 would not be expected to have an overall effect on the visual resources of the area, due to the temporary duration of construction activity and the existing developed features in the area. The local adverse impacts to visual resources would not be of sufficient magnitude or nature to impair the integrity of visual resources that are necessary to fulfill specific purposes identified in the park's establishing legislation, key to opportunities for enjoyment of the park, or identified as a goal in the park's *General Management Plan* or other relevant planning documents. Therefore, Alternative 4 would not impair resources or park values for future generations.

Recreation and Public Use

Alternative 1

Analysis

Operation-related Effects on Recreation and Public Use. Visitors to The Marine Mammal Center would continue to be limited by the configuration of The Center. The Marine Mammal Center would continue to not have a physical sense of arrival. The layout of the existing pens and pools and vantage points from which marine mammals can be observed would continue to not provide optimal viewing opportunities to the visiting public. Education programs would continue to be conducted at a building located at Fort Cronkhite, approximately ½-mile from the treatment site, with limited program space and educational programs occurring on outdoor bleachers. Educational programs would continue to be impacted due to insufficient facilities, including the absence of indoor classroom space. Interpretation materials would continue to include only three interpretive panels with limited information. Visitor safety would continue to be adversely affected by the unsafe parking configuration at The Center.

Impact Significance. Local, Long-term, Minor, Adverse Impact.

Summary of Alternative 1 Impacts. Alternative 1 would have a local, long-term, minor, adverse impact on recreation and public use due to sub-optimal viewing opportunities to the visiting public, insufficient facilities to conduct educational programming, and unsafe parking configurations at The Center.

Impairment

Alternative 1 would result in a local, long-term, minor, adverse impact to recreation and public use at The Center. The adverse effect of this alternative on recreation and public use would be localized with no discernible overall effect on the visitor experience in the Marin Headlands. Therefore, Alternative 1 would not impair resources or park values for future generations.

Alternative 2

Analysis

Construction-related Effects on Recreation and Public Use. Construction activities would have a temporary adverse affect visitor experience at The Marine Mammal Center. Visitors would have limited access to The Center because areas under construction would be fenced off from visitor access. Visitors would be exposed to construction noise and dust, which would adversely affect visitor experience and educational programming efforts. Operation of construction equipment could adversely affect visitor safety. Implementation of mitigation measures identified in Appendix A, Mitigation Measures, such as fencing construction areas to protect public health and safety would somewhat offset the adverse construction-related impacts on recreation and public use.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Minor, Adverse Impact.

Operation-related Effects on Recreation and Public Use. Implementation of Alternative 2 would improve visitor experience at The Marine Mammal Center. Alternative 2 would involve a reconfiguration of The Marine Mammal Center campus with the inclusion of many features designed to further The Center's mission related to public education and outreach. Alternative 2 would provide improved landscaping and an entry porch designed to promote visitors' sense of arrival. Educational facilities and opportunities for science-based educational programming would be improved through the development of a Marine Science Community Education Center and education amphitheater. Interactive laboratory and indoor classroom programs would be available for school groups. Visitors to The Center would enter a discovery room, which would orient visitors to The Marine Mammal Center and the natural history of marine mammals. The visitor experience would be improved through the development of a public observation deck over the pens and pools and facilities designed with observation windows with views of the laboratory, necropsy, chart room, and marine mammal food preparation area. Exhibits would interpret treatment protocols, disease research, human interaction, and rescue and release functions. Approximately 43 public parking spaces would be conveniently provided at the western end of the site and along the access road, which would improve visitor access to The Marine Mammal Center. Alternative 2 facility improvements would have a local, long-term, moderate, beneficial effect on recreation and public use in the project area due to improved educational and observation facilities and increased public parking spaces.

Impact Significance. Local, Long-term, Moderate, Beneficial Impact.

Summary of Alternative 2 Impacts. Alternative 2 would have local, long-term, minor, beneficial impact on recreation and public use in the project area. The beneficial educational and observation facility improvements to The Center would offset the adverse construction-related impacts.

Impairment

Alternative 2 would result in a local, long-term, minor, beneficial impact on visitor experience compared to Alternative 1. Since Alternative 2 would have an overall beneficial effect, this alternative would not impair resources or park values for future generations.

Alternative 3

Analysis

Construction-related Effects on Recreation and Public Use. Construction-related impacts would be similar to those described under Alternative 2; however, the intensity of the adverse impact to recreation and public use would be more severe due to the larger construction area affected by this alternative. Under Alternative 3, The Marine Mammal Center site and the proposed remote parking area would both experience construction activity and adversely affect visitor experience and educational programming efforts. Implementation of mitigation measures identified in Appendix A, Mitigation Measures, such as fencing construction areas to protect public health and safety would somewhat offset the adverse construction-related impacts on recreation and public use.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Moderate, Adverse Impact.

Operation-related Effects on Recreation and Public Use. Implementation of Alternative 3 would improve visitor experience at The Marine Mammal Center similar to the beneficial impacts described under Alternative 2. Alternative 3 would feature improved educational facilities, public observation areas, and public parking spaces similar to those described under Alternative 2. Alternative 3 would include approximately 62 public parking spaces predominantly located in a remote parking area at the former kennel site. Unlike the unpaved and undelineated remote parking area under Alternative 1, the remote parking area under this alternative would be paved, striped, and signed for ease of use with parking space and interior circulation delineations. Overall, Alternative 3 facility improvements would have a local, long-term, moderate, beneficial effect on recreation and public use in the project area due to improved educational and observation facilities and increased public parking spaces.

Impact Significance. Local, Long-term, Moderate, Beneficial Impact.

Summary of Alternative 3 Impacts. Alternative 3 would have local, long-term, negligible, beneficial impact on recreation and public use in the project area. The beneficial education, observation, and parking facility improvements to The Center would offset the adverse construction-related impacts.

Impairment

Alternative 3 would result in a local, long-term, negligible, beneficial impact on visitor experience compared to Alternative 1. Since Alternative 3 would have an overall beneficial effect, this alternative would not impair resources or park values for future generations.

Alternative 4

Analysis

Construction-related Effects on Recreation and Public Use. Construction-related impacts would be similar to those described under Alternative 2, although Alternative 4 features substantially less construction activity due to fewer new facilities proposed. In addition, Alternative 4 would feature construction activity in both the central facility area and the new remote parking area. Implementation of mitigation measures identified in Appendix A, Mitigation Measures, such as fencing construction areas to protect public health and safety would somewhat offset the adverse construction-related impacts on recreation and public use.

Impact Significance after Mitigation Included in the Project. Local, Short-term, Minor, Adverse Impact.

Operation-related Effects on Recreation and Public Use. Implementation of Alternative 4 would somewhat improve visitor experience at The Marine Mammal Center. The Visitor experience would be improved through the development of a public observation area on the ground-level between The Center's buildings, and facilities designed with observation windows with views of the laboratory, necropsy, chart room, and marine mammal food preparation area. Similar to Alternative 1, the education building would remain at Fort Cronkhite with limited program space and educational programs at the treatment site occurring on outdoor bleachers. Approximately 40 public parking spaces would be provided predominantly at the proposed remote parking area. Fewer parking spaces would be provided at the treatment site under Alternative 4 than under Alternative 1, which would adversely affect visitor access. Overall, Alternative 4 facility improvements would have a local, long-term, moderate, beneficial effect on recreation and public use in the project area due to improved ground-level observation facilities. The facility improvements would offset adverse effects associated with the reduced number of public parking spaces.

Impact Significance. Local, Long-term, Moderate, Beneficial Impact.

Summary of Alternative 4 Impacts. Alternative 4 would have local, long-term, moderate, adverse impact on recreation and public use in the project area. The adverse construction-related impacts would offset the beneficial facility improvements to The Center.

Impairment

Alternative 4 would result in a local, long-term, moderate, adverse impact on visitor experience compared to Alternative 1. The adverse effect of this alternative on recreation and public use would be localized with no discernible overall effect on the visitor experience in the Marin Headlands. Therefore, Alternative 4 would not impair resources or park values for future generations.

Cumulative Impacts

A cumulative impact is described in regulations developed by the Council on Environmental Quality, Regulation 1508.7, as follows:

> A "cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person

undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

One other major project, the Fort Baker/Marin Headlands Transportation Management Plan, is currently being planned in the Marin Headlands at this time. Under this project, NPS is initiating a planning effort to analyze and recommend long-term transportation management actions related to vehicle, pedestrian, bicycle and transit service within the Marin Headlands and Fort Baker areas. The study will seek to minimize the intrusion of automobiles and encourage alternative modes of transportation to these national park sites. The Draft EIS for this plan is anticipated after the completion of review of this EA.

The Marine Mammal Center has been involved in planning with this ongoing project to ensure that all elements of the Project are considered in the larger planning effort. Of particular interest will be impacts from any proposed changes under that plan that could affect cultural resources, traffic and/or changes to sediment and runoff within the project area. As part of these discussions, the NPS and the Center agreed that 25 spaces of needed overflow parking would be included and planned for within the description of future parking for the Marin Headlands.

The Fort Baker Redevelopment Plan (NPS, June 2000) identified actions that could affect regional traffic; however, mitigations included in that EIS will ensure that these impacts will not cumulatively affect the Marine Mammal project area. The Fort Baker EIS also analyzed the effects of new construction on the FBBC National Register District. The cumulative effects of adding three new buildings to the historic district, under the Marine Mammal Center undertaking, would be assessed in the Section 106 consultation process. Since these new structures are on a previously developed area and are screened from general view, the effects would not be adverse.

As plans are developed to reuse Fort Cronkhite buildings impacts to traffic would also need to be examined to ensure that a cumulative impact does not occur. Analysis developed for the Fort Baker/Marin Headlands Transportation Management Plan would inform this analysis. Beyond these elements, no cumulative effects have been identified within this project or within other activities in the project area.